Search History

STN
(HCAPLUS, JAPIO, USPATALL, INSPEC)
1/3/2008

```
=> d his

     (FILE 'HOME' ENTERED AT 17:15:43 ON 03 JAN 2008)

     FILE 'HCAPLUS, INSPEC, JAPIO, USPATFULL, USPATOLD, USPAT2' ENTERED AT
     17:16:06 ON 03 JAN 2008
L1          5724 S (SIC OR SILICON(W)CARBON)(10A)(SINGLE(3W)CRYSTAL# OR MONO(3W)
L2            14 S (DISSOLV? OR MELT?)(8A)(ALKALI(8A)METAL?(W)FLUX?)
L3          4784 S (2H(W)SIC OR 2H(W)SILICON OR 3C(W)SIC OR 3C(W)SILICON(W)CARBI
L4             9 S (DISSOLV? OR MELT?)(10A)(ALKALI(W)METAL?(W)FLUX?)
L5       6738685 S (HEAT?)
L6       6638185 S (LI OR LITHIUM OR NA OR SODIUM OR K OR POTASSIUM)
L7        426786 S ( GRAPHITE)

=> s l1 and l2
L8             2 L1 AND L2

=> d l8 1-2 abs,bib

L8   ANSWER 1 OF 2  HCAPLUS  COPYRIGHT 2008 ACS on STN
AB   Disclosed is a method for producing a large-sized SiC
     single crystal at a low cost.  Specifically, a
     SiC single crystal is produced or grown by
     melting and reacting Si and C in an alkali metal
     flux.  Li is preferable as the alkali metal.  By this method, a
     SiC single crystal can be produced under low
     temperature conditions, e.g., at 1500° or less.
AN   2006:653404  HCAPLUS
DN   145:113877
TI   Method for producing silicon carbide single crystal and silicon carbide
     single crystal obtained by such method
IN   Kitaoka, Yasuo; Sasaki, Takatomo; Mori, Yusuke; Kawamura, Fumio; Kawahara,
     Minoru
PA   Matsushita Electric Industrial Co., Ltd., Japan; Osaka University
SO   PCT Int. Appl., 25 pp.
     CODEN: PIXXD2
DT   Patent
LA   Japanese
FAN.CNT 1
     PATENT NO.           KIND   DATE       APPLICATION NO.          DATE
     ---------------      ----   --------   ----------------------   --------
PI   WO 2006070749         A1    20060706   WO 2005-JP23798          20051226
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
             CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
             GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR,
             KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX,
             MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE,
             SG, SK, SL, SM, SV, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC,
             VN, YU, ZA, ZM, ZW
         RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
             IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,
             CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,
             GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
             KG, KZ, MD, RU, TJ, TM
     EP 1739211            A1    20070103   EP 2005-820246           20051226
         R:  AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
             IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL,
             BA, HR, MK, YU
     CN 1922346            A     20070228   CN 2005-80005839         20051226
     KR 2007069089         A     20070702   KR 2006-717373           20060828
     US 2007221122         A1    20070927   US 2006-599035           20060918
PRAI JP 2004-380168        A     20041228
     WO 2005-JP23798       W     20051226
RE.CNT  13    THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
```

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 2 OF 2 USPATFULL on STN

AB The present invention provides a producing method with which large silicon carbide (SiC) single crystal can be produced at low cost. Silicon carbide single crystal is produced or grown by dissolving and reacting silicon (Si) and carbon (C) in an alkali metal flux. The alkali metal preferably is lithium (Li). With this method, silicon carbide single crystal can be produced even under low-temperature conditions of 1500° C. or lower, for example. The photograph of FIG. 3B is an example of a silicon carbide single crystal obtained by the method of the present invention.

AN 2007:253199 USPATFULL

TI Method for Producing Silicon Carbide (Sic) Single Crystal and Silicon Carbide (Sic) Single Crystal Obtained By Such Method

IN Kitaoka, Yasuo, Osaka, JAPAN
Mori, Yusuke, Osaka, JAPAN
Sasaki, Takatomo, Osaka, JAPAN
Kawamura, Fumio, Osaka, JAPAN
Kawahara, Minoru, Osaka, JAPAN

PA MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD., Kadoma-shi, Osaka, JAPAN (non-U.S. corporation)
OSAKA UNIVERSITY, Suita-shi, Osaka, JAPAN (non-U.S. corporation)

PI US 2007221122 A1 20070927

AI US 2005-599035 A1 20051226 (10)
WO 2005-JP23798 20051226
20060918 PCT 371 date

PRAI JP 2004-380168 20041228

DT Utility

FS APPLICATION

LREP HAMRE, SCHUMANN, MUELLER & LARSON P.C., P.O. BOX 2902-0902, MINNEAPOLIS, MN, 55402, US

CLMN Number of Claims: 19

ECL Exemplary Claim: 1

DRWN 7 Drawing Page(s)

LN.CNT 511

=>

STN

(HCAPLUS, INSPEC, JAPIO, USPATFULL) 1/3/2008

=> d his

(FILE 'HOME' ENTERED AT 17:15:43 ON 03 JAN 2008)

FILE 'HCAPLUS, INSPEC, JAPIO, USPATFULL, USPATOLD, USPAT2' ENTERED AT 17:16:06 ON 03 JAN 2008

```
L1          5724 S (SIC OR SILICON(W)CARBON)(10A)(SINGLE(3W)CRYSTAL# OR MONO(3W)
L2            14 S (DISSOLV? OR MELT?)(8A)(ALKALI(8A)METAL?(W)FLUX?)
L3          4784 S (2H(W)SIC OR 2H(W)SILICON OR 3C(W)SIC OR 3C(W)SILICON(W)CARBI
L4             9 S (DISSOLV? OR MELT?)(10A)(ALKALI(W)METAL?(W)FLUX?)
L5       6738685 S (HEAT?)
L6       6638185 S (LI OR LITHIUM OR NA OR SODIUM OR K OR POTASSIUM)
L7        426786 S ( GRAPHITE)
L8             2 S L1 AND L2
```

=> s l2 and (si or silicon and C or carbon)

```
L9             6 L2 AND (SI OR SILICON AND C OR CARBON)
```

=> d l9 1-6 abs,bib

L9 ANSWER 1 OF 6 HCAPLUS COPYRIGHT 2008 ACS on STN

AB Disclosed is a method for producing a large-sized SiC single crystal at a low cost. Specifically, a SiC single crystal is produced or grown by melting and reacting Si and C in an alkali metal flux. Li is preferable as the alkali metal. By this method, a SiC single crystal can be produced under low temperature conditions, e.g., at 1500° or less.

AN 2006:653404 HCAPLUS

DN 145:113877

TI Method for producing silicon carbide single crystal and silicon carbide single crystal obtained by such method

IN Kitaoka, Yasuo; Sasaki, Takatomo; Mori, Yusuke; Kawamura, Fumio; Kawahara, Minoru

PA Matsushita Electric Industrial Co., Ltd., Japan; Osaka University

SO PCT Int. Appl., 25 pp.
CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2006070749	A1	20060706	WO 2005-JP23798	20051226
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
EP 1739211	A1	20070103	EP 2005-820246	20051226
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, YU				
CN 1922346	A	20070228	CN 2005-80005839	20051226
KR 2007069089	A	20070702	KR 2006-717373	20060828
US 2007221122	A1	20070927	US 2006-599035	20060918
PRAI JP 2004-380168	A	20041228		
WO 2005-JP23798	W	20051226		

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 2 OF 6 USPATFULL on STN
AB The present invention provides a producing method with which large silicon carbide (SiC) single crystal can be produced at low cost. Silicon carbide single crystal is produced or grown by dissolving and reacting silicon (Si) and carbon (C) in an alkali metal flux. The alkali metal preferably is lithium (Li). With this method, silicon carbide single crystal can be produced even under low-temperature conditions of 1500° C. or lower, for example. The photograph of FIG. 3B is an example of a silicon carbide single crystal obtained by the method of the present invention.

AN 2007:253199 USPATFULL
TI Method for Producing Silicon Carbide (SiC) Single Crystal and Silicon Carbide (SiC) Single Crystal Obtained By Such Method
IN Kitaoka, Yasuo, Osaka, JAPAN
Mori, Yusuke, Osaka, JAPAN
Sasaki, Takatomo, Osaka, JAPAN
Kawamura, Fumio, Osaka, JAPAN
Kawahara, Minoru, Osaka, JAPAN
PA MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD., Kadoma-shi, Osaka, JAPAN (non-U.S. corporation)
OSAKA UNIVERSITY, Suita-shi, Osaka, JAPAN (non-U.S. corporation)
PI US 2007221122 A1 20070927
AI US 2005-599035 A1 20051226 (10)
WO 2005-JP23798 20051226
20060918 PCT 371 date
PRAI JP 2004-380168 20041228
DT Utility
FS APPLICATION
LREP HAMRE, SCHUMANN, MUELLER & LARSON P.C., P.O. BOX 2902-0902, MINNEAPOLIS, MN, 55402, US
CLMN Number of Claims: 19
ECL Exemplary Claim: 1
DRWN 7 Drawing Page(s)
LN.CNT 511

L9 ANSWER 3 OF 6 USPATFULL on STN
AB A material of manufacture comprising sub-micron particulate amorphous titanium diboride formed by a process which comprises the steps of forming a powdered reaction mixture of titanium oxide, boron oxide and magnesium, exothermically reacting the reaction mixture in an atmosphere including air to yield a reacted mass containing titanium diboride and magnesia, leaching the reacted mass with a leaching solution having a pH in the range of about 0.5 to about 8, and recovering from the leaching solution sub-micron titanium diboride having a surface area of from about 25 to about 49 m.sup.2 /gm; and a material of manufacture resulting from the hot pressing of the sub-micron particulate titanium diboride material of this invention which has a hardness of from about 2,800 to about 3,400 Knoop, an elastic modulus from about 700 to about 813 GPa, a forming temperature of from about 1500° C. or less, and a grain morphology aspect ratio of from about 2:1 to about 100:1.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AN 94:1176 USPATFULL
TI Material made from highly reactive [sub-micron]amorphous titanium diboride powder and products made therefrom
IN Logan, Kathryn V., Roswell, GA, United States
PA Georgia Tech Research Corporation, Atlanta, GA, United States (U.S. corporation)
PI US 5275781 19940104
AI US 1992-970488 19921102 (7)

RLI Division of Ser. No. US 1989-399329, filed on 28 Aug 1989, now patented, Pat. No. US 5160716 which is a continuation-in-part of Ser. No. US 1986-903265, filed on 3 Sep 1986, now patented, Pat. No. US 4888166
DT Utility
FS Granted
EXNAM Primary Examiner: Walsh, Donald P.; Assistant Examiner: Chi, Anthony R.
LREP Deveau, Colton & Marquis
CLMN Number of Claims: 24
ECL Exemplary Claim: 1,2
DRWN 7 Drawing Figure(s); 5 Drawing Page(s)
LN.CNT 483
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 4 OF 6 USPATFULL on STN
AB A material of manufacture comprising sub-micron particulate amorphous titanium diboride formed by a process which comprises the steps of forming a powdered reaction mixture of titanium oxide, boron oxide and magnesium, exothermically reacting the reaction mixture in an atmosphere including air to yield a reacted mass containing titanium diboride and magnesia, leaching the reacted mass with a leaching solution having a pH in the range of about 0.5 to about 8, and recovering from the leaching solution sub-micron titanium diboride having a surface area of from about 25 to about 49 m.sup 2 /gm; and a material of manufacture resulting from the hot pressing of the sub-micron particulate titanium diboride material of this invention which has a hardness of from about 2800 to about 3400 Knoop, an elastic modulus from about 700 to about 813 GPa, a forming temperature of from about 1500° C. or less, and a grain morphology aspect ratio of from about 2:1 to about 100:1.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AN 92:90999 USPATFULL
TI Process for making highly reactive sub-micron amorphous titanium diboride power and products made therefrom
IN Logan, Kathryn V., Roswell, GA, United States
PA Georgia Tech Research Corporation, Atlanta, GA, United States (U.S. corporation)
PI US 5160716 19921103
AI US 1989-399329 19890828 (7)
DCD 20061219
RLI Continuation-in-part of Ser. No. US 1986-903265, filed on 3 Sep 1986, now patented, Pat. No. US 4888166
DT Utility
FS Granted
EXNAM Primary Examiner: Russel, Jeffrey E.
LREP Hurt, Richardson, Garner, Todd & Cadenhead
CLMN Number of Claims: 5
ECL Exemplary Claim: 1
DRWN 7 Drawing Figure(s); 5 Drawing Page(s)
LN.CNT 433
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 5 OF 6 USPATFULL on STN
AB A method of producing submicron titanium diboride from an initial mixture of titanium oxide, boron oxide, and magnesium, by reducing the titanium dioxide and boron oxide with magnesium in an atmosphere including air to yield a resultant product containing submicron titanium diboride and magnesia. The reduction reaction is preferably initiated by locally igniting the initial mixture. The resultant product is then cooled and leached with a leaching solution having a pH in the range of about 0.5 to about 8 to recover the sub-micron titanium diboride.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AN 89:100440 USPATFULL
TI Process for making highly reactive sub-micron amorphous titanium

diboride powder
IN Logan, Kathryn V., Roswell, United States
PA Georgia Tech Research Corporation, Atlanta, GA, United States (U.S. corporation)
PI US 4888166 19891219
AI US 1986-903265 19860903 (6)
DT Utility
FS Granted
EXNAM Primary Examiner: Doll, John; Assistant Examiner: Russel, Jeffrey Edwin
LREP Hurt, Richardson, Garner, Todd & Cadenhead
CLMN Number of Claims: 13
ECL Exemplary Claim: 1
DRWN 1 Drawing Figure(s); 1 Drawing Page(s)
LN.CNT 231
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 6 OF 6 USPATOLD on STN
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AN 1931:16625 USPATOLD
TI Method of treating materials containing lead
IN HAYWARD CARLE R
PI US 1804054 A 19310505
AI US 1929-351128 19290329
PRAI US 1929-351128 19290329
DT Utility
FS GRANTED
LN.CNT 211
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=>

Douglas P. Mueller
Tel #(612) 455-3800

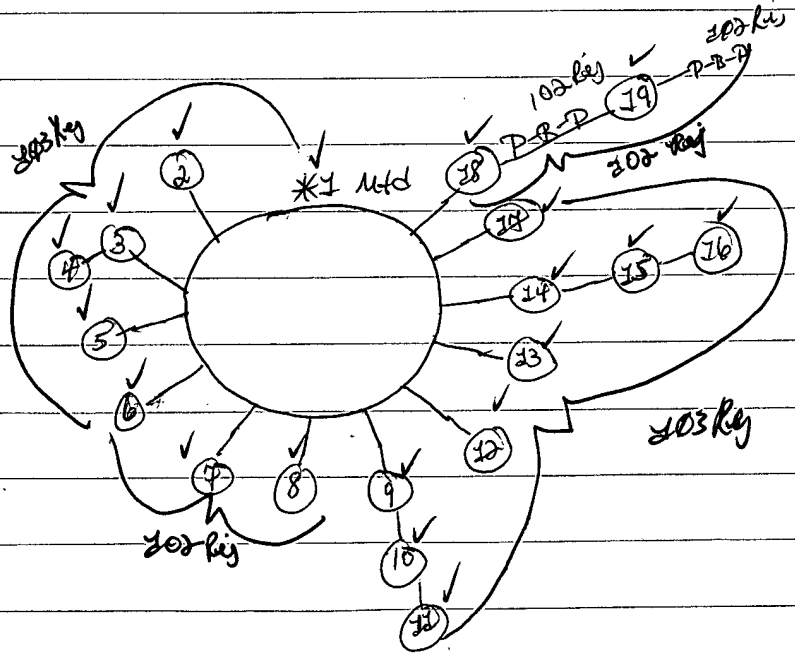
10/599,035

Examiner's Notes

In the specification after the title on page 1, please insert the following:
--This application is a 371 of PCT/JP05/23798 12/26/2005--.
IDS (09/18/2006)

102 Rej
Claims 18-19 P-B-P claims

h1 S(SiC or silicon(w) carbide) (10a) (single(3)w) crystal# or mono(3d) crystal#)
h2 S(dissolu? or melt?) (10a) (alkali (8a) metal?(w) flux)
h3 S(Si or silicon and carbon or c)
h4 S(2ndw) SiC or 2nd(w) silicon(w) carbide or 3C(w) SiC or 3C(w) silicon(w) carbide)
h5 S(heat?)
claims h6 S(Li or lithium or Na or sodium or K or potassium)
h7 S(graphite)



~~102(b)~~ 102(b) Rej:
Claims 18-19 (5,718,760 - Carter, et al) Col. 2, lines 14-19 and lines 41-54),

~~103~~ 103 Rej
Claims 1-5, 9-13 and 17) (4,349,407 - Lundberg in view of 3,053,635 - Shockley)
Claims 14-15 (4,349,407 - Lundberg in view of 3,669,763 - Perusek)

~~102 Rej~~
Claims 6-8 (4,349,407 - Lundberg)
Claim 16 (4,349,407 - Lundberg in view of 4,702,901 - Shalek)
Col. 3, lines 65-68 and col. 4, lines 1)
k8. CH_4 - methane gas

page 5, lines 18-23,

Alkali metal flux (includes Li, Na, K, Cs ...